

Application No.: 10/811,991Docket No.: 713-584A**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Original) A method for forming a coated film of a thermoplastic material on a region of at least a part of an inner peripheral surface of a cylinder so as to extend in a whole circumferential direction thereof, comprising the steps of:

providing a paste applying machine for discharging a molten paste of said thermoplastic material kept molten by heating from a distal end of a nozzle;

arranging said nozzle in a space in said cylinder so that said molten paste is discharged toward the inner peripheral surface of said cylinder;

moving said nozzle along a rotational center of said cylinder within a range opposite to said region while rotating said cylinder in said circumferential direction and discharging said molten paste from said nozzle; and

spreading said molten paste applied to said inner peripheral surface by means of centrifugal force acting on said cylinder being rotated, to thereby wholly cover said region with said molten paste.

2. (previously presented) A method as defined in claim 1, wherein viscosity of said molten paste, a rotational speed of said cylinder and a speed of movement of said nozzle are determined so as to prevent said molten paste discharged onto said inner peripheral surface from said nozzle from being scattered to an other region other than said region.

3. (Original) A method as defined in claim 2, wherein said nozzle has a discharge port formed into a substantially circle shape; and

said molten paste is discharged from said nozzle under a pressure of 1 kg/cm<sup>2</sup> or less under the conditions that said viscosity of said molten paste is set to be within a range of between

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50cp and 100cp, said rotational speed of said cylinder is set to be within a range of between 2700 rpm and 3300 rpm, said speed of movement of said nozzle is set to be within a range of between 0.055 m/s and 0.08 m/s and a distance between said distal end of said nozzle and said inner peripheral surface of said cylinder is set to be within a range of between 3mm and 7mm.

4-7. (cancelled)

8. (previously presented) A method as defined in claim 2, wherein said molten paste is discharged from said nozzle under a pressure of 1 kg/cm<sup>2</sup> or less under the conditions that said viscosity of said molten paste is set to be within a range of between 50cp and 100cp.

9. (previously presented) A method as defined in claim 2, wherein said rotational speed of said cylinder is set to be within a range of between 2700 rpm and 3300 rpm.

10. (previously presented) A method as defined in claim 2, wherein said speed of movement of said nozzle is set to be within a range of between 0.055 m/s and 0.08 m/s.

11. (previously presented) A method as defined in claim 2, wherein a distance between said distal end of said nozzle and said inner peripheral surface of said cylinder is set to be within a range of between 3mm and 7mm.

12. (previously presented) A method as defined in claim 1, wherein said spreading step overlaps said moving step.

13. (previously presented) A method as defined in claim 2, wherein said molten paste is discharged in a spiral pattern.

14. (previously presented) A method as defined in claim 2, wherein said molten paste is discharged in an amount of between 0.07 to 0.1 g from said nozzle under a discharge pressure of 1 kg/cm<sup>2</sup> or less.

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15. (currently amended) A method of forming a coated film of a thermoplastic material on a region of an inner peripheral surface of a cylinder so that the coated film extends in a whole circumferential direction of the inner peripheral surface, said method comprising the steps of:

discharging a molten paste of said thermoplastic material, which is kept molten by heating, from a distal end of a nozzle;

arranging said nozzle in an inner space in said cylinder so that said molten paste is discharged toward the inner peripheral surface of said cylinder;

moving said nozzle along an axis of said cylinder across said region while rotating said cylinder in said circumferential direction about said axis and discharging said molten paste from said nozzle; and

spreading said molten paste applied to said inner peripheral surface by means of centrifugal force acting on said cylinder being rotated, to thereby wholly cover said region with said molten paste.

16. (new) The method of claim 15, wherein viscosity of said molten paste, a rotational speed of said cylinder and a speed of movement of said nozzle in an axial direction of said cylinder are determined so as to prevent said molten paste discharged onto said inner peripheral surface from said nozzle from being scattered to an other region other than said region, said other region and said region together defining an entirety of said inner peripheral surface, an axial extent of said other region uncoated with said thermoplastic material being greater than an axial extent of said region coated with said thermoplastic material.

17. (new) The method of claim 16, further comprising coating said inner peripheral surface only partially by moving said nozzle, from an inner boundary of said region, outwardly and axially of said cylinder, while rotating said cylinder and discharging said molten paste from said nozzle, until an outer boundary of said region is reached.

18. (new) The method of claim 15, further comprising increasing a rotational speed of said cylinder after the molten paste is discharged onto the region to be coated, thereby

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spreading said discharged molten paste, by means of centrifugal force acting on said cylinder being increasingly rotated, to thereby wholly cover said region with said molten paste.

19. (new) A method of forming a coated film of a thermoplastic material on a region of an inner peripheral surface of a cylinder so that the coated film extends in a whole circumferential direction of said inner peripheral surface, said method comprising the step of:

providing a coating apparatus comprising:

a cylinder drive mechanism for rotating said cylinder in said circumferential direction about an axis of said cylinder;

a paste applying machine for discharging a molten paste of said thermoplastic material kept molten by heating from a distal end of a nozzle; and  
a timing controller;

said paste applying machine including a gun head provided with said nozzle, a gun head moving mechanism for moving said gun head and molten paste feed equipment for feeding said molten paste to said gun head;

said timing controller being constructed in such a manner that operation timing of each of said cylinder drive mechanism, said gun head moving mechanism, and said molten paste feed equipment is determined so as to permit said cylinder to be rotated in said circumferential direction while keeping said nozzle arranged in a space in said cylinder and so as to permit said nozzle to be moved along a rotational center of said cylinder being rotated and within a range opposite to said region while keeping said molten paste discharged from said nozzle;

discharging the molten paste of said thermoplastic material, which is kept molten by heating, from the distal end of said nozzle;

arranging said nozzle in the space in said cylinder so that said molten paste is discharged toward the inner peripheral surface of said cylinder;

moving said nozzle along the axis of said cylinder within the range opposite to said region while rotating said cylinder in said circumferential direction and discharging said molten paste from said nozzle; and

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spreading said molten paste applied to said inner peripheral surface by means of centrifugal force acting on said cylinder being rotated, to thereby wholly cover said region with said molten paste.

20. (new) The method as defined in claim 19, wherein  
said providing step further comprising providing said molten paste feed equipment with  
a molten paste feed unit which includes a storage tank in which said  
molten paste is stored; and  
a molten paste replenishing unit;  
said method further comprising  
feeding, using said molten paste feed unit, said molten paste to said gun head under a predetermined pressure so as to permit said molten paste to be discharged from said nozzle under said predetermined pressure; and  
automatically replenishing, using said molten paste replenishing unit, said molten paste to said storage tank when the amount of said molten paste in said storage tank of said molten paste feed unit is reduced to a level lower than a predetermined level.

21. (new) The method as defined in claim 20, further comprising  
keeping a pressure in said storage tank at a constant level, so that the pressure in said storage tank permits said molten paste to be fed to said gun head;  
feeding said molten paste, from said molten paste replenishing unit, to said storage tank under a pressure which is higher than said pressure in said storage tank;  
providing a level sensor in said storage tank of said molten paste feed unit, and detecting the level of said molten paste in said storage tank with said sensor;  
further providing said storage tank with a molten paste replenishing port having a control on/off valve, and keeping said valve open during a period of time for which a control command is inputted thereto and closed during the remaining period of time; and  
generating said control command during a period of time defined between after said level sensor detects that the level of said molten paste in said storage tank is at a first level or below

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and before said level sensor detects that the level of said molten paste in said storage tank reaches a second level higher than said first level.

22. (new) The method as defined in claim 20, further comprising further providing said molten paste feed unit with an on/off valve in the midst of a molten paste feed pipe which connects said storage tank and said gun head; and opening or closing said valve in response to a command from said timing controller.